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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR 059)
(21 September 1967)

BY

STANLEY KUBINSKI

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WHITE SANDS MISSILE RANGE, NEW MEXICO

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR 059)
(21 September 1967)

By

Stanley Rubinski

DR-255

October 1967

DA Task IV650212A127-02

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR C59) are presented for the Ballistics Systems Division, U. S. Air Force, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

| | PAGE |
|---|------|
| ABSTRACT ----- | iii |
| INTRODUCTION ----- | 1 |
| DISCUSSION ----- | 1 |
| TABLES | |
| I. Theoretical Rocket Performance Values ----- | 2 |
| II. Ballistic Factors ----- | 3 |
| III. Anemometer Wind Speed and Direction ----- | 4 |
| IV. Pilot-Balloon-Measured Wind Data ----- | 5 |
| V. Rawinsonde-Measured Wind Data ----- | 7 |
| VI. Significant Level Data (Release Time: 1030 MDT) ----- | 8 |
| VII. Upper Air Data (Release Time: 1030 MDT) ----- | 9 |
| VIII. Mandatory Levels (Release Time: 1030 MDT) ----- | 16 |
| IX. Significant Level Data (Release Time: 0700 MDT) ----- | 17 |
| X. Upper Air Data (Release Time: 0700 MDT) ----- | 19 |
| XI. Mandatory Levels (Release Time: 0700 MDT) ----- | 26 |
| XII. Impact Prediction Data ----- | 27 |

INTRODUCTION

Nike-Hydac STV (SR 059) was launched from Launch Complex 33, L-314, White Sands Missile Range (WSMR), New Mexico, at 1000 hours MDT, 21 September 1967.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistics Meteorologist for this firing was Stanley F. Kubinski.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to wind component indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from T-9 radar observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 74,168 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table XII.

| | | | |
|-----------------------|----------|-----------|--------------|
| PAYLOAD | | 215.0 | Pounds |
| CORIOLIS DISPLACEMENT | WEST | 5.0 | Miles |
| SECOND-STAGE IGNITION | TIME | 20.0 | Seconds |
| | ALTITUDE | 36,690.0 | Feet MSL |
| PEAK | TIME | 232.0 | Seconds |
| | ALTITUDE | 720,000.0 | Feet MSL |
| UNIT WIND EFFECT | RANGE | 2.27 | Miles/MPH |
| | CROSS | 2.36 | Miles/MPH |
| | | | Miles/MPH |
| TOWER TILT EFFECT | | 14.3 | Miles/Degree |

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV (SR 059)

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 11- 60 | .1440 |
| 60- 108 | .0966 |
| 108- 148 | .0629 |
| 148- 184 | .0502 |
| 184- 216 | .0286 |
| 216- 300 | .0724 |
| 300- 400 | .0533 |
| 400- 600 | .0752 |
| 600- 800 | .0557 |
| 800-1000 | .0400 |

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 1000- 1400 | .0555 |
| 1400- 2000 | .0575 |
| 2000- 2500 | .0288 |
| 2500- 3000 | .0195 |
| 3000- 3500 | .0112 |
| 3500- 4000 | .0073 |
| 4000- 4250 | .0012 |
| 4250- 9000 | -.0135 |
| 9000-15000 | -.0147 |
| 15000-21000 | -.0166 |

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 21000-26000 | -.0102 |
| 26000-32691 | -.0110 |
| 32591-34000 | .0430 |
| 34000-36000 | .0411 |
| 36000-41000 | .0545 |
| 41000-46000 | .0259 |
| 46000-51000 | .0154 |
| 51000-56000 | .0092 |
| 56000-61000 | .0060 |
| 61000-66000 | .0040 |
| 66000-74168 | .0020 |

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV (SR 059)

| AERO- VANE NO. * | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|------------------------|--|------|----------|------|----------|------|----------|------|----------|------|
| | 1 | | 2 | | 3 | | 4 | | 5 | |
| | 0800 MDT | | 0830 MDT | | 0900 MDT | | 0915 MDT | | 0930 MDT | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 1 | 2.0S | 1.5W | 2.0S | 1.5W | 4.5S | 0.5E | 5.5S | 0.0 | 4.0S | 1.5W |
| 2 | 4.0 | 2.0 | 3.5 | 2.0 | 4.0 | 0.5 | 6.0 | 0.5W | 5.5 | 2.5 |
| 3 | 5.0 | 0.0 | 4.0 | 2.0 | 4.0 | 0.5 | 5.0 | 0.0 | 6.0 | 2.0 |
| 4 | 6.5 | 1.5E | 6.0 | 1.5 | 4.0 | 0.0 | 6.0 | 0.0 | 6.5 | 2.0 |
| 5 | 6.0 | 2.0 | 7.0 | 0.0 | 4.0 | 0.0 | 4.5 | 3.5E | 6.0 | 0.5E |

| AERO- VANE NO. * | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|------------------------|--|------|----------|------|----------|------|-----|-----|-----|-----|
| | 6 | | 7 | | 8 | | | | | |
| | 0940 MDT | | 0950 MDT | | 1000 MDT | | | | | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 1 | 2.5S | 0.5W | 5.0S | 0.5E | 3.5S | 1.5E | | | | |
| 2 | 3.0 | 0.0 | 4.0 | 0.0 | 1.0 | 2.0 | | | | |
| 3 | 4.0 | 1.5W | 4.0 | 0.5W | 3.0 | 1.0 | | | | |
| 4 | 5.0 | 0.5 | 4.5 | 1.0E | 3.5 | 0.5 | | | | |
| 5 | 3.5 | 1.5E | 4.5 | 4.5 | 1.5 | 3.5 | | | | |

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV (SR 059)

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet
2 = 88 Feet 4 = 168 Feet

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|--------------------------------------|--|------|----------|------|----------|------|----------|------|----------|------|
| | 1 | | 2 | | 3 | | 4 | | 5 | |
| | 0800 MDT | | 0830 MDT | | 0900 MDT | | 0915 MDT | | 0930 MDT | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 216- 300 | 6.0S | 4.0E | 6.5S | 0.0 | 4.0S | 0.0 | 4.0S | 0.5E | 1.0S | 3.0W |
| 300- 400 | 5.5 | 6.0 | 5.5 | 0.0 | 4.0 | 0.0 | 3.0 | 0.5W | 2.0 | 3.0 |
| 400- 600 | 6.5 | 7.0 | 5.0 | 0.0 | 5.5 | 1.0W | 3.0 | 1.0 | 5.0 | 0.0 |
| 600- 800 | 8.0 | 8.0 | 6.5 | 2.5E | 4.0 | 0.5 | 4.0 | 0.0 | 4.0 | 1.0E |
| 800-1000 | 8.5 | 10.0 | 7.5 | 3.5 | 2.0 | 1.0E | 2.5 | 1.0E | 3.0 | 1.0W |
| 1000-1400 | 7.0 | 11.5 | 5.0 | 2.0 | 1.5N | 2.0 | 2.0N | 0.5 | 1.0 | 0.5 |
| 1400-2000 | 2.0 | 9.0 | 1.5 | 4.0 | 4.5 | 2.0 | 4.5 | 0.5 | 5.0N | 0.5 |
| 2000-2500 | 1.5N | 4.0 | 1.5N | 2.5 | 8.5 | 1.0 | 7.0 | 2.0 | 9.5 | 2.0E |
| 2500-3000 | 1.0 | 4.5 | 6.0 | 0.5W | 9.0 | 1.5 | 10.0 | 1.5 | 12.0 | 1.0 |
| 3000-3500 | 0.5S | 8.0 | 7.0 | 0.5 | 10.5 | 2.0 | 10.5 | 0.0 | 13.5 | 2.0 |
| 3500-4000 | 1.5 | 12.0 | 3.0 | 0.0 | 4.5 | 0.5 | 8.0 | 3.0E | 9.5 | 4.0 |

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
(T-9 RADAR TRACKER METHOD)
NIKE-HYDAC STV (SR 059)

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|--------------------------------------|--|------|----------|------|----------|------|-----|-----|-----|-----|
| | 6 | | 7 | | 0 | | E-W | | N-S | |
| | 0940 MDT | | 0950 MDT | | 1001 MDT | | E-W | | N-S | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 216- 300 | 3.5S | 3.0W | 4.5S | 2.5E | 1.0S | 0.5E | | | | |
| 300- 400 | 4.5 | 3.0 | 6.5 | 0.5 | 2.0 | 2.5W | | | | |
| 400- 600 | 5.0 | 1.5 | 6.5 | 0.5 | 4.5 | 1.5 | | | | |
| 600- 800 | 5.5 | 0.0 | 6.0 | 1.5 | 6.5 | 0.0 | | | | |
| 800-1000 | 2.5 | 1.0W | 6.5 | 1.0 | 6.5 | 0.5W | | | | |
| 1000-1100 | 0.5N | 3.0 | 6.0 | 1.0W | 4.0 | 1.0E | | | | |
| 1100-2000 | 5.0 | 2.5 | 4.0N | 3.0 | 5.5S | 2.0W | | | | |
| 2000-2500 | 9.0 | 1.0E | 8.0 | 0.5 | 8.0 | 0.5 | | | | |
| 2500-3000 | 11.0 | 1.0 | 11.0 | 0.5 | 11.0 | 0.5 | | | | |
| 3000-3500 | 10.5 | 0.0 | 9.5 | 3.5E | 10.0 | 2.5E | | | | |
| 3500-4000 | 8.0 | 4.5E | 5.5 | 3.5 | 7.0 | 3.5E | | | | |

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (CONT)
(T-9 RADAR TRACKER METHOD)
NIKE-HYDAC STV (UR 059)

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN KNOTS | | | | | |
|--------------------------------------|-------------------------------|-------|---------------|------|-----|-----|
| | 1 0700 MDT | | 2 1030 MDT | | | |
| | N-S | E-W | N-S | E-W | N-S | E-W |
| 4000-4253 | 2.5N | 15.0E | 5.0N | 6.0E | | |
| 4253-9000 | 0.0 | 14.0 | 6.0 | 10.5 | | |
| 9000-15000 | 6.0N | 3.0 | 7.5 | 9.0 | | |
| 15000-21000 | 10.5 | 6.0W | 8.5 | 9.0W | | |
| 21000-26000 | 9.5 | 16.5 | 7.0 | 12.0 | | |
| 26000-32691 | 0.0 | 29.0 | 4.0 | 23.5 | | |
| 32691-34000 | 0.0 | 25.0 | 4.5 | 26.5 | | |
| 34000-36000 | 4.5E | 26.5 | 4.5 | 26.5 | | |
| 36000-41000 | 10.0 | 28.0 | 0.0 | 27.0 | | |
| 41000-46000 | 5.5 | 30.5 | 0.0 | 26.0 | | |
| 46000-51000 | 0.0 | 22.0 | 11.5N | 9.5 | | |
| 51000-56000 | 10.5E | 4.0E | 5.0E | 8.5E | | |
| 56000-61000 | 3.5N | 18.5 | 2.5 | 13.0 | | |
| 61000-66000 | 2.5 | 13.0 | 0.0 | 12.0 | | |
| 66000-74168 | 5.0 | 13.0 | 3.0E | 16.0 | | |

TABLE V. NAUTIBONDE-MEASURED WIND DATA
NIKE-HYDAC STV (SR 059)

STATION ALTITUDE 3789.0 FEET MSL
21 SEPT. 67
ASCENSION NO. 766

SIGNIFICANT LEVEL DATA
3360003901
WHITL SANDS SITE
TABLE VI

WSTM SITE COORDINATES
E 480,580 FEET
N 185,045 FEET

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE | | REL. HUM. PERCENT |
|-----------------------|-----------------------------------|----------------|------------------------|----------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | |
| 885.0 | 3909.0 | 23.6 | 15.0 | 50.0 |
| 875.0 | 4314.5 | 22.1 | 10.0 | 46.0 |
| 829.0 | 5845.4 | 18.1 | 8.4 | 53.0 |
| 730.0 | 9394.1 | 13.6 | -2.4 | 33.0 |
| 632.0 | 13310.6 | 3.6 | -9.4 | 38.0 |
| 582.0 | 15504.4 | 2.5 | -21.6 | 15.0 |
| 489.0 | 20050.9 | -6.6 | -31.4 | 12.0 |
| 474.0 | 20851.3 | -6.4 | -39.1 | 10.0 |
| 405.0 | 24829.9 | -14.9 | -30.9 | 11.0 |
| 320.0 | 30525.9 | -29.6 | -45.5 | 20.0 |
| 294.0 | 32507.3 | -31.7 | -50.4 | 14.0 |
| 164.0 | 45287.9 | -61.2 | 0. | ** |
| 126.0 | 50517.8 | -72.5 | 0. | ** |
| 121.0 | 51303.8 | -71.9 | 0. | ** |
| 107.0 | 53672.3 | -75.6 | 0. | ** |
| 100.0 | 54576.9 | -72.2 | 0. | ** |
| 86.0 | 57924.1 | -69.4 | 0. | ** |
| 78.0 | 59873.5 | -63.8 | 0. | ** |
| 68.0 | 62693.9 | -66.3 | 0. | ** |
| 47.0 | 70192.1 | -56.0 | 0. | ** |
| 35.0 | 76381.6 | -55.6 | 0. | ** |
| 24.0 | 84473.9 | -47.7 | 0. | ** |
| 12.0 | 99788.9 | -42.6 | 0. | ** |
| 9.0 | 106317.8 | -36.0 | 0. | ** |

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

UPPLR AIR DATA
0160009901
WHITE SANDS SITE
TABLE VII

WYSM SITE COORDINATES
E 460,500 FEET
N 105,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|---------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES (TN) | SPEED KNOTS | |
| 3989.0 | 885.0 | 23.6 | 15.0 | 58.0 | 1031.6 | 673.2 | | 180.0 | 1.9 | 1.000303 |
| 4000.0 | 884.7 | 23.5 | 14.8 | 57.6 | 1031.4 | 673.1 | | 180.9 | 2.0 | 1.000302 |
| 4500.0 | 869.3 | 21.6 | 9.8 | 46.8 | 1022.1 | 670.3 | | 220.9 | 2.3 | 1.000281 |
| 5000.0 | 854.1 | 20.3 | 9.4 | 49.1 | 1008.8 | 668.0 | | 260.9 | 2.7 | 1.000276 |
| 5500.0 | 839.2 | 19.0 | 8.8 | 51.4 | 995.7 | 667.2 | | 300.9 | 3.1 | 1.000272 |
| 6000.0 | 824.4 | 17.9 | 8.0 | 52.1 | 982.1 | 665.9 | | 341.0 | 3.5 | 1.000267 |
| 6500.0 | 809.8 | 17.3 | 6.6 | 49.3 | 967.1 | 665.1 | | 4.5 | 4.6 | 1.000259 |
| 7000.0 | 795.4 | 16.6 | 5.2 | 46.5 | 952.3 | 664.2 | | 17.6 | 6.2 | 1.000252 |
| 7500.0 | 781.3 | 16.0 | 3.7 | 43.7 | 937.8 | 663.4 | | 25.5 | 7.4 | 1.000245 |
| 8000.0 | 767.4 | 15.4 | 2.2 | 40.9 | 923.5 | 662.6 | | 32.1 | 8.8 | 1.000238 |
| 8500.0 | 753.8 | 14.7 | 0.6 | 38.0 | 909.3 | 661.7 | | 38.8 | 11.1 | 1.000232 |
| 9000.0 | 740.4 | 14.1 | -1.0 | 35.2 | 895.4 | 660.9 | | 41.0 | 12.9 | 1.000226 |
| 9500.0 | 727.2 | 13.3 | -2.5 | 33.1 | 882.0 | 659.9 | | 47.0 | 14.2 | 1.000221 |
| 10000.0 | 713.9 | 12.1 | -3.4 | 33.8 | 869.9 | 658.4 | | 52.9 | 15.1 | 1.000216 |
| 10500.0 | 700.9 | 10.8 | -4.3 | 34.4 | 858.0 | 656.9 | | 57.5 | 15.8 | 1.000212 |
| 11000.0 | 688.1 | 9.5 | -5.2 | 35.1 | 846.3 | 655.4 | | 58.7 | 15.8 | 1.000208 |
| 11500.0 | 675.6 | 8.2 | -6.1 | 35.7 | 834.7 | 653.9 | | 59.3 | 15.7 | 1.000205 |
| 12000.0 | 663.2 | 6.9 | -7.0 | 36.3 | 823.3 | 652.3 | | 57.4 | 15.2 | 1.000201 |
| 12500.0 | 651.1 | 5.7 | -7.9 | 37.0 | 812.1 | 650.8 | | 51.9 | 14.7 | 1.000197 |
| 13000.0 | 639.3 | 4.4 | -8.8 | 37.6 | 801.0 | 649.3 | | 54.0 | 13.9 | 1.000194 |
| 13500.0 | 627.5 | 3.5 | -10.2 | 36.0 | 788.9 | 648.2 | | 52.6 | 12.9 | 1.000190 |
| 14000.0 | 615.8 | 3.3 | -12.4 | 35.8 | 775.0 | 647.8 | | 51.7 | 11.9 | 1.000184 |
| 14500.0 | 604.4 | 3.0 | -14.9 | 25.5 | 761.6 | 647.3 | | 50.0 | 10.1 | 1.000179 |
| 15000.0 | 593.1 | 2.8 | -17.9 | 29.3 | 748.3 | 647.1 | | 47.7 | 8.6 | 1.000174 |
| 15500.0 | 582.1 | 2.5 | -21.6 | 15.0 | 735.2 | 646.7 | | 47.7 | 8.0 | 1.000169 |
| 16000.0 | 571.1 | 1.5 | -22.6 | 14.7 | 723.9 | 645.5 | | 49.6 | 7.4 | 1.000166 |
| 16500.0 | 560.2 | 0.5 | -23.7 | 14.3 | 712.8 | 644.3 | | 55.6 | 6.0 | 1.000163 |
| 17000.0 | 549.6 | -0.5 | -24.8 | 14.0 | 701.9 | 643.2 | | 59.3 | 7.1 | 1.000161 |
| 17500.0 | 539.2 | -1.5 | -25.9 | 13.7 | 691.2 | 641.9 | | 61.9 | 7.7 | 1.000158 |
| 18000.0 | 529.0 | -2.5 | -26.9 | 13.4 | 680.6 | 640.7 | | 62.3 | 7.7 | 1.000155 |

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030 RPS MDT
ASCENSION NO. 766

UPPER AIR DATA
1360003901
WHITI SANDS SITE
TAU.R VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CELSIUS | TEMPERATURE DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CM ³ METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|--------------------------------------|----------------------|--|----------------------------|---------------------------------------|----------------|---------------------------|
| 18500.0 | 518.9 | -3.5 | -28.0 | 13.0 | 670.2 | 639.5 | 98.0 | 7.6 | 1.000152 |
| 19000.0 | 509.1 | -4.5 | -29.1 | 12.7 | 660.0 | 638.3 | 41.6 | 7.1 | 1.000150 |
| 19500.0 | 499.4 | -5.5 | -30.2 | 12.4 | 649.9 | 637.1 | 22.9 | 7.1 | 1.000147 |
| 20000.0 | 490.0 | -6.5 | -31.3 | 12.0 | 640.0 | 635.9 | 1.7 | 7.5 | 1.000145 |
| 20500.0 | 480.5 | -6.5 | -32.3 | 10.9 | 627.6 | 635.9 | 346.1 | 8.5 | 1.000142 |
| 21000.0 | 471.2 | -6.7 | -33.3 | 10.0 | 616.0 | 635.7 | 334.4 | 9.9 | 1.000139 |
| 21500.0 | 462.0 | -7.8 | -34.0 | 10.2 | 606.4 | 634.4 | 328.6 | 10.2 | 1.000137 |
| 22000.0 | 453.0 | -8.9 | -34.8 | 10.3 | 597.0 | 633.1 | 326.4 | 9.8 | 1.000135 |
| 22500.0 | 444.1 | -9.9 | -35.5 | 10.4 | 587.7 | 631.8 | 325.8 | 9.0 | 1.000133 |
| 23000.0 | 435.4 | -11.0 | -36.2 | 10.5 | 578.5 | 630.5 | 325.9 | 7.9 | 1.000130 |
| 23500.0 | 426.9 | -12.1 | -36.9 | 10.7 | 569.5 | 629.2 | 327.8 | 7.2 | 1.000128 |
| 24000.0 | 418.5 | -13.1 | -37.7 | 10.8 | 560.7 | 627.9 | 330.0 | 6.6 | 1.000126 |
| 24500.0 | 410.3 | -14.2 | -38.4 | 10.7 | 552.0 | 626.7 | 325.7 | 7.3 | 1.000124 |
| 25000.0 | 402.2 | -15.3 | -39.0 | 11.3 | 543.4 | 625.3 | 321.5 | 8.1 | 1.000122 |
| 25500.0 | 393.9 | -16.6 | -39.6 | 12.1 | 534.9 | 623.7 | 318.6 | 9.6 | 1.000120 |
| 26000.0 | 385.9 | -17.9 | -39.9 | 12.8 | 526.7 | 622.1 | 314.2 | 11.0 | 1.000118 |
| 26500.0 | 378.0 | -19.2 | -40.3 | 13.6 | 518.5 | 620.5 | 305.8 | 12.3 | 1.000117 |
| 27000.0 | 370.2 | -20.5 | -40.9 | 14.4 | 510.5 | 619.0 | 298.2 | 13.3 | 1.000115 |
| 27500.0 | 362.7 | -21.8 | -41.4 | 15.2 | 502.6 | 617.4 | 291.7 | 14.0 | 1.000113 |
| 28000.0 | 355.2 | -23.1 | -42.0 | 16.0 | 494.9 | 615.8 | 285.0 | 15.3 | 1.000111 |
| 28500.0 | 348.0 | -24.4 | -42.7 | 16.8 | 487.3 | 614.2 | 278.3 | 16.9 | 1.000109 |
| 29000.0 | 340.8 | -25.7 | -43.3 | 17.6 | 479.8 | 612.6 | 273.7 | 18.3 | 1.000108 |
| 29500.0 | 333.9 | -27.0 | -44.0 | 18.4 | 472.4 | 611.0 | 270.0 | 19.4 | 1.000106 |
| 30000.0 | 327.0 | -28.2 | -44.7 | 19.2 | 465.2 | 609.4 | 268.8 | 20.5 | 1.000104 |
| 30500.0 | 320.3 | -29.5 | -45.5 | 20.0 | 458.1 | 607.8 | 268.2 | 21.5 | 1.000103 |
| 31000.0 | 313.6 | -30.1 | -46.6 | 18.6 | 449.5 | 607.1 | 270.7 | 21.6 | 1.000101 |
| 31500.0 | 306.9 | -30.6 | -47.8 | 17.1 | 440.9 | 606.4 | 274.1 | 21.4 | 1.000099 |
| 32000.0 | 300.4 | -31.2 | -49.1 | 15.5 | 432.5 | 605.7 | 278.7 | 21.7 | 1.000097 |
| 32500.0 | 294.1 | -31.7 | -50.4 | 14.0 | 424.3 | 605.1 | 283.6 | 22.1 | 1.000095 |
| 33000.0 | 287.4 | -32.8 | -51.7 | 13.5** | 416.7 | 603.6 | 288.5 | 22.8 | 1.000093 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67
ASCENSION NO. 766

UPPER AIR DATA
0360003901
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 33500.0 | 280.9 | -34.0 | -53.0 | 12.9** | 409.3 | 602.3 | 293.3 | 293.3 | 23.5 | 1.000091 |
| 34000.0 | 274.5 | -35.2 | -54.3 | 12.4** | 402.0 | 600.7 | 292.3 | 292.3 | 24.1 | 1.000090 |
| 34500.0 | 268.4 | -36.3 | -55.7 | 11.8** | 394.8 | 599.3 | 291.1 | 291.1 | 24.7 | 1.000088 |
| 35000.0 | 262.3 | -37.5 | -57.0 | 11.3** | 387.8 | 597.8 | 288.9 | 288.9 | 24.9 | 1.000087 |
| 35500.0 | 256.4 | -38.6 | -58.3 | 10.7** | 380.9 | 596.3 | 286.7 | 286.7 | 25.2 | 1.000085 |
| 36000.0 | 250.6 | -39.8 | -59.7 | 10.2** | 374.1 | 594.8 | 283.1 | 283.1 | 26.0 | 1.000083 |
| 36500.0 | 244.9 | -40.9 | -61.0 | 9.6** | 367.5 | 593.4 | 279.6 | 279.6 | 26.8 | 1.000082 |
| 37000.0 | 239.4 | -42.1 | -62.4 | 9.1** | 361.0 | 591.9 | 276.8 | 276.8 | 26.4 | 1.000080 |
| 37500.0 | 234.0 | -43.2 | -63.8 | 8.5** | 354.6 | 590.4 | 273.9 | 273.9 | 25.9 | 1.000079 |
| 38000.0 | 228.7 | -44.4 | -65.2 | 8.0** | 348.3 | 588.9 | 272.6 | 272.6 | 26.1 | 1.000078 |
| 38500.0 | 223.5 | -45.6 | -66.7 | 7.4** | 342.2 | 587.4 | 271.6 | 271.6 | 26.4 | 1.000076 |
| 39000.0 | 218.5 | -46.7 | -68.1 | 6.9** | 336.1 | 585.9 | 269.9 | 269.9 | 26.0 | 1.000075 |
| 39500.0 | 213.5 | -47.9 | -69.6 | 6.3** | 330.2 | 584.4 | 267.8 | 267.8 | 25.1 | 1.000074 |
| 40000.0 | 208.7 | -49.0 | -71.2 | 5.8** | 324.4 | 582.9 | 266.6 | 266.6 | 24.9 | 1.000072 |
| 40500.0 | 204.0 | -50.2 | -72.7 | 5.2** | 318.7 | 581.4 | 267.8 | 267.8 | 26.5 | 1.000071 |
| 41000.0 | 199.4 | -51.3 | -74.4 | 4.7** | 313.1 | 579.9 | 269.0 | 269.0 | 28.1 | 1.000070 |
| 41500.0 | 194.8 | -52.5 | -76.1 | 4.1** | 307.7 | 578.4 | 266.7 | 266.7 | 27.0 | 1.000069 |
| 42000.0 | 190.4 | -53.6 | -77.8 | 3.5** | 302.3 | 576.9 | 264.3 | 264.3 | 25.8 | 1.000067 |
| 42500.0 | 186.1 | -54.8 | -79.7 | 3.0** | 297.0 | 575.4 | 264.3 | 264.3 | 25.4 | 1.000066 |
| 43000.0 | 181.9 | -56.0 | -81.8 | 2.5** | 291.8 | 573.8 | 266.2 | 266.2 | 25.7 | 1.000065 |
| 43500.0 | 177.8 | -57.1 | -84.1 | 1.9** | 286.8 | 572.3 | 267.8 | 267.8 | 25.9 | 1.000064 |
| 44000.0 | 173.8 | -58.3 | -86.8 | 1.4** | 281.8 | 570.8 | 266.5 | 266.5 | 24.9 | 1.000063 |
| 44500.0 | 169.9 | -59.4 | -90.3 | 0.8** | 276.9 | 569.2 | 265.2 | 265.2 | 23.9 | 1.000062 |
| 45000.0 | 166.0 | -60.6 | -96.5 | 0.3** | 272.1 | 567.7 | 266.4 | 266.4 | 24.9 | 1.000061 |
| 45500.0 | 162.1 | -61.7 | 0. | -0. ** | 267.1 | 566.2 | 269.3 | 269.3 | 27.2 | 1.000059 |
| 46000.0 | 158.1 | -62.8 | 0. | -0. ** | 261.8 | 564.8 | 271.3 | 271.3 | 28.2 | 1.000058 |
| 46500.0 | 154.2 | -63.9 | 0. | -0. ** | 256.6 | 563.3 | 271.4 | 271.4 | 26.2 | 1.000057 |
| 47000.0 | 150.3 | -64.9 | 0. | -0. ** | 251.6 | 561.9 | 271.8 | 271.8 | 24.5 | 1.000056 |
| 47500.0 | 146.6 | -66.0 | 0. | -0. ** | 246.6 | 560.4 | 276.0 | 276.0 | 25.5 | 1.000055 |
| 48000.0 | 143.0 | -67.1 | 0. | -0. ** | 241.7 | 559.0 | 280.1 | 280.1 | 26.5 | 1.000054 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030-1128 MDT
ASCENSION NO. 746

UPPER AIR DATA
7360003901
WHITE SANDS SITE
TABLE VII. (Cont)

WSM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|---------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 48500.0 | 139.4 | -68.2 | 0. | -0. | 237.0 | 557.5 | 11282.8 | 24.1 | 1.000053 | |
| 49000.0 | 136.0 | -69.2 | 0. | -0. | 232.3 | 556.0 | 285.4 | 21.2 | 1.000052 | |
| 49500.0 | 132.6 | -70.3 | 0. | -0. | 227.8 | 554.6 | 287.5 | 20.3 | 1.000051 | |
| 50000.0 | 129.3 | -71.4 | 0. | -0. | 223.3 | 553.1 | 289.2 | 20.4 | 1.000050 | |
| 50500.0 | 126.1 | -72.5 | 0. | -0. | 218.9 | 551.6 | 290.6 | 19.8 | 1.000049 | |
| 51000.0 | 122.9 | -72.1 | 0. | -0. | 213.0 | 552.1 | 291.0 | 17.0 | 1.000047 | |
| 51500.0 | 119.8 | -72.2 | 0. | -0. | 207.7 | 552.0 | 291.4 | 14.3 | 1.000046 | |
| 52000.0 | 116.7 | -73.0 | 0. | -0. | 203.1 | 550.9 | 291.6 | 13.0 | 1.000045 | |
| 52500.0 | 113.7 | -73.8 | 0. | -0. | 198.7 | 549.8 | 291.7 | 12.2 | 1.000044 | |
| 53000.0 | 110.8 | -74.5 | 0. | -0. | 194.4 | 548.7 | 291.1 | 10.9 | 1.000043 | |
| 53500.0 | 108.0 | -75.3 | 0. | -0. | 190.1 | 547.7 | 288.3 | 8.1 | 1.000042 | |
| 54000.0 | 105.2 | -74.7 | 0. | -0. | 184.7 | 549.5 | 285.6 | 5.3 | 1.000041 | |
| 54500.0 | 102.5 | -73.4 | 0. | -0. | 178.8 | 550.3 | 237.1 | 4.7 | 1.000040 | |
| 55000.0 | 99.9 | -72.2 | 0. | -0. | 173.1 | 552.0 | 172.7 | 4.8 | 1.000039 | |
| 55500.0 | 97.4 | -71.7 | 0. | -0. | 168.4 | 552.7 | 122.2 | 5.5 | 1.000037 | |
| 56000.0 | 94.9 | -71.2 | 0. | -0. | 163.7 | 553.3 | 119.4 | 8.0 | 1.000036 | |
| 56500.0 | 92.5 | -70.8 | 0. | -0. | 159.2 | 554.0 | 116.6 | 10.4 | 1.000035 | |
| 57000.0 | 90.2 | -70.3 | 0. | -0. | 154.8 | 554.6 | 115.9 | 11.2 | 1.000034 | |
| 57500.0 | 87.9 | -69.8 | 0. | -0. | 150.6 | 555.3 | 115.9 | 11.3 | 1.000034 | |
| 58000.0 | 85.7 | -69.2 | 0. | -0. | 146.3 | 556.1 | 115.4 | 11.6 | 1.000033 | |
| 58500.0 | 83.6 | -67.7 | 0. | -0. | 141.7 | 558.1 | 113.4 | 12.1 | 1.000032 | |
| 59000.0 | 81.5 | -66.3 | 0. | -0. | 137.3 | 560.0 | 111.5 | 12.5 | 1.000031 | |
| 59500.0 | 79.5 | -64.9 | 0. | -0. | 132.9 | 561.9 | 108.8 | 13.4 | 1.000030 | |
| 60000.0 | 77.5 | -63.9 | 0. | -0. | 129.1 | 563.2 | 105.9 | 14.3 | 1.000029 | |
| 60500.0 | 75.6 | -64.4 | 0. | -0. | 126.2 | 562.6 | 103.0 | 15.0 | 1.000028 | |
| 61000.0 | 73.8 | -64.8 | 0. | -0. | 123.3 | 562.0 | 99.8 | 15.0 | 1.000027 | |
| 61500.0 | 71.9 | -65.3 | 0. | -0. | 120.6 | 561.4 | 96.6 | 15.0 | 1.000027 | |
| 62000.0 | 70.2 | -65.7 | 0. | -0. | 117.9 | 560.8 | 97.4 | 14.3 | 1.000026 | |
| 62500.0 | 68.5 | -66.2 | 0. | -0. | 115.2 | 560.2 | 98.5 | 13.6 | 1.000026 | |
| 63000.0 | 66.8 | -65.8 | 0. | -0. | 112.3 | 560.6 | 99.1 | 12.7 | 1.000025 | |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030 HRS MDT
ASCENSION NO. 766

UPPER AIR DATA
0360003901
WHITE SANDS SITE
TABLE VII (Cont)

WSYM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 43500.0 | 65.2 | -65.2 | 0. | -0. | 109.2 | 561.5 | 98.9 | 98.9 | 11.7 | 1.000024 |
| 44000.0 | 64.6 | -64.6 | 0. | -0. | 106.3 | 562.3 | 98.7 | 98.7 | 10.6 | 1.000024 |
| 44500.0 | 62.1 | -64.0 | 0. | -0. | 103.4 | 563.2 | 96.1 | 96.1 | 10.3 | 1.000023 |
| 45000.0 | 60.6 | -63.3 | 0. | -0. | 100.6 | 564.0 | 93.4 | 93.4 | 9.9 | 1.000022 |
| 45500.0 | 59.1 | -62.7 | 0. | -0. | 97.9 | 564.9 | 90.3 | 90.3 | 10.2 | 1.000022 |
| 46000.0 | 57.7 | -62.1 | 0. | -0. | 95.2 | 565.7 | 86.8 | 86.8 | 11.2 | 1.000021 |
| 46500.0 | 56.3 | -61.4 | 0. | -0. | 92.6 | 566.6 | 83.6 | 83.6 | 12.0 | 1.000021 |
| 47000.0 | 54.9 | -60.8 | 0. | -0. | 90.1 | 567.4 | 85.1 | 85.1 | 12.5 | 1.000020 |
| 47500.0 | 53.6 | -60.2 | 0. | -0. | 87.7 | 568.2 | 86.6 | 86.6 | 12.9 | 1.000020 |
| 48000.0 | 52.3 | -59.6 | 0. | -0. | 85.3 | 569.1 | 87.6 | 87.6 | 13.4 | 1.000019 |
| 48500.0 | 51.1 | -58.9 | 0. | -0. | 83.0 | 569.9 | 88.2 | 88.2 | 13.8 | 1.000018 |
| 49000.0 | 49.8 | -58.3 | 0. | -0. | 80.8 | 570.7 | 88.7 | 88.7 | 14.2 | 1.000018 |
| 49500.0 | 48.6 | -57.7 | 0. | -0. | 78.6 | 571.6 | 87.3 | 87.3 | 13.7 | 1.000017 |
| 50000.0 | 47.4 | -57.0 | 0. | -0. | 76.5 | 572.4 | 85.8 | 85.8 | 13.1 | 1.000017 |
| 50500.0 | 46.3 | -56.7 | 0. | -0. | 74.6 | 572.8 | 84.3 | 84.3 | 12.5 | 1.000017 |
| 51000.0 | 45.2 | -56.6 | 0. | -0. | 72.8 | 572.9 | 82.8 | 82.8 | 11.7 | 1.000016 |
| 51500.0 | 44.2 | -56.5 | 0. | -0. | 71.0 | 573.1 | 81.4 | 81.4 | 10.9 | 1.000016 |
| 52000.0 | 43.1 | -56.4 | 0. | -0. | 69.3 | 573.2 | 85.1 | 85.1 | 10.9 | 1.000015 |
| 52500.0 | 42.1 | -56.4 | 0. | -0. | 67.7 | 573.3 | 90.0 | 90.0 | 11.0 | 1.000015 |
| 53000.0 | 41.1 | -56.3 | 0. | -0. | 66.0 | 573.5 | 94.3 | 94.3 | 10.9 | 1.000015 |
| 53500.0 | 40.1 | -56.2 | 0. | -0. | 64.5 | 573.6 | 96.2 | 96.2 | 9.8 | 1.000014 |
| 54000.0 | 39.2 | -56.1 | 0. | -0. | 62.9 | 573.7 | 98.0 | 98.0 | 8.7 | 1.000014 |
| 54500.0 | 38.3 | -56.0 | 0. | -0. | 61.4 | 573.8 | 99.1 | 99.1 | 8.4 | 1.000014 |
| 55000.0 | 37.4 | -55.9 | 0. | -0. | 59.9 | 574.0 | 99.4 | 99.4 | 8.9 | 1.000013 |
| 55500.0 | 36.5 | -55.8 | 0. | -0. | 58.5 | 574.1 | 99.7 | 99.7 | 9.3 | 1.000013 |
| 56000.0 | 35.6 | -55.7 | 0. | -0. | 57.1 | 574.2 | 95.9 | 95.9 | 8.9 | 1.000013 |
| 56500.0 | 34.8 | -55.5 | 0. | -0. | 55.7 | 574.5 | 91.2 | 91.2 | 8.3 | 1.000012 |
| 57000.0 | 34.0 | -55.0 | 0. | -0. | 54.3 | 575.1 | 86.5 | 86.5 | 7.8 | 1.000012 |
| 57500.0 | 33.2 | -54.5 | 0. | -0. | 52.9 | 575.8 | 80.5 | 80.5 | 8.1 | 1.000012 |
| 58000.0 | 32.5 | -54.0 | 0. | -0. | 51.6 | 576.4 | 74.4 | 74.4 | 8.5 | 1.000011 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION. !

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030 HRS MDT
ASCENSION NO. 766

UPPER AIR DATA
7360003901
WHITE SANDS SITE
TABLE VII (Cont)

WSM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 78500.0 | 31.7 | -53.5 | -0. | 50.3 | 577.0 | 68.9 | 8.8 | 1.000011 |
| 79000.0 | 31.0 | -53.0 | -0. | 49.0 | 577.7 | 66.8 | 8.9 | 1.000011 |
| 79500.0 | 30.3 | -52.6 | -0. | 47.8 | 578.3 | 64.7 | 9.0 | 1.000011 |
| 80000.0 | 29.6 | -52.1 | -0. | 46.6 | 579.0 | 63.3 | 9.0 | 1.000010 |
| 80500.0 | 28.9 | -51.6 | -0. | 45.4 | 579.6 | 65.1 | 8.9 | 1.000010 |
| 81000.0 | 28.2 | -51.1 | -0. | 44.3 | 580.2 | 66.9 | 8.8 | 1.000010 |
| 81500.0 | 27.6 | -50.6 | -0. | 43.2 | 580.9 | 68.8 | 8.8 | 1.000010 |
| 82000.0 | 26.9 | -50.1 | -0. | 42.1 | 581.5 | 71.0 | 9.0 | 1.000009 |
| 82500.0 | 26.3 | -49.6 | -0. | 41.0 | 582.1 | 73.2 | 9.2 | 1.000009 |
| 83000.0 | 25.7 | -49.1 | -0. | 40.0 | 582.8 | 74.4 | 9.4 | 1.000009 |
| 83500.0 | 25.1 | -48.7 | -0. | 39.0 | 583.4 | 73.7 | 9.5 | 1.000009 |
| 84000.0 | 24.5 | -48.2 | -0. | 38.0 | 584.1 | 73.0 | 9.6 | 1.000008 |
| 84500.0 | 24.0 | -47.7 | -0. | 37.0 | 584.7 | 75.0 | 9.7 | 1.000008 |
| 85000.0 | 23.4 | -47.5 | -0. | 36.2 | 584.9 | 80.8 | 9.7 | 1.000008 |
| 85500.0 | 22.9 | -47.4 | -0. | 35.4 | 585.1 | 86.5 | 9.7 | 1.000008 |
| 86000.0 | 22.4 | -47.2 | -0. | 34.5 | 585.3 | 91.8 | 9.6 | 1.000008 |
| 86500.0 | 21.9 | -47.0 | -0. | 33.7 | 585.5 | 96.4 | 9.4 | 1.000008 |
| 87000.0 | 21.4 | -46.9 | -0. | 33.0 | 585.7 | 100.9 | 9.2 | 1.000007 |
| 87500.0 | 20.9 | -46.7 | -0. | 32.2 | 586.0 | 105.6 | 9.0 | 1.000007 |
| 88000.0 | 20.5 | -46.5 | -0. | 31.5 | 586.2 | 110.6 | 8.8 | 1.000007 |
| 88500.0 | 20.0 | -46.4 | -0. | 30.7 | 586.4 | 115.5 | 8.6 | 1.000007 |
| 89000.0 | 19.6 | -46.2 | -0. | 30.0 | 586.6 | 118.6 | 8.3 | 1.000007 |
| 89500.0 | 19.1 | -46.0 | -0. | 29.3 | 586.8 | 113.7 | 7.2 | 1.000007 |
| 90000.0 | 18.7 | -45.9 | -0. | 28.6 | 587.0 | 108.9 | 6.1 | 1.000006 |
| 90500.0 | 18.3 | -45.7 | -0. | 28.0 | 587.2 | 104.1 | 5.0 | 1.000006 |
| 91000.0 | 17.9 | -45.5 | -0. | 27.3 | 587.5 | 106.3 | 4.9 | 1.000006 |
| 91500.0 | 17.5 | -45.4 | -0. | 26.7 | 587.7 | 111.8 | 5.3 | 1.000006 |
| 92000.0 | 17.1 | -45.2 | -0. | 26.1 | 587.9 | 117.3 | 5.7 | 1.000006 |
| 92500.0 | 16.7 | -45.0 | -0. | 25.5 | 588.1 | 122.3 | 6.0 | 1.000006 |
| 93000.0 | 16.3 | -44.9 | -0. | 24.9 | 588.3 | 120.9 | 5.5 | 1.000006 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030 HRS MDT
ASCENSION NO. 766

UPPER AIR DATA
(3600003901
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES (TM) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|--|----------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 93500.0 | 16.0 | -44.7 | -0. | 24.3 | 588.5 | 119.5 | 4.9 | 1.000005 |
| 94000.0 | 15.6 | -44.5 | -0. | 23.8 | 588.8 | 118.0 | 4.3 | 1.000005 |
| 94500.0 | 15.2 | -44.4 | -0. | 23.2 | 589.0 | 119.1 | 4.7 | 1.000005 |
| 95000.0 | 14.9 | -44.2 | -0. | 22.7 | 589.2 | 122.9 | 6.3 | 1.000005 |
| 95500.0 | 14.6 | -44.0 | -0. | 22.2 | 589.4 | 126.7 | 7.8 | 1.000005 |
| 96000.0 | 14.2 | -43.9 | -0. | 21.6 | 589.6 | 130.5 | 9.3 | 1.000005 |
| 96500.0 | 13.9 | -43.7 | -0. | 21.1 | 589.8 | 129.5 | 10.0 | 1.000005 |
| 97000.0 | 13.6 | -43.5 | -0. | 20.7 | 590.0 | 127.8 | 10.7 | 1.000005 |
| 97500.0 | 13.3 | -43.4 | -0. | 20.2 | 590.2 | 126.1 | 11.3 | 1.000004 |
| 98000.0 | 13.0 | -43.2 | -0. | 19.7 | 590.5 | 124.1 | 11.9 | 1.000004 |
| 98500.0 | 12.7 | -43.0 | -0. | 19.3 | 590.7 | 121.1 | 12.7 | 1.000004 |
| 99000.0 | 12.4 | -42.9 | -0. | 18.8 | 590.9 | 118.1 | 13.5 | 1.000004 |
| 99500.0 | 12.2 | -42.7 | -0. | 18.4 | 591.1 | 115.2 | 14.2 | 1.000004 |
| 100000.0 | 11.9 | -42.4 | -0. | 18.0 | 591.5 | 114.4 | 16.0 | 1.000004 |
| 100500.0 | 11.6 | -41.9 | -0. | 17.5 | 592.1 | 114.8 | 18.3 | 1.000004 |
| 101000.0 | 11.4 | -41.4 | -0. | 17.1 | 592.8 | 115.2 | 20.6 | 1.000004 |
| 101500.0 | 11.1 | -40.9 | -0. | 16.7 | 593.4 | 115.6 | 22.8 | 1.000004 |
| 102000.0 | 10.9 | -40.4 | -0. | 16.3 | 594.1 | 111.5 | 21.7 | 1.000004 |
| 102500.0 | 10.6 | -39.9 | -0. | 15.9 | 594.7 | 107.4 | 20.6 | 1.000004 |
| 103000.0 | 10.4 | -39.4 | -0. | 15.5 | 595.4 | 103.3 | 19.4 | 1.000003 |
| 103500.0 | 10.2 | -38.8 | -0. | 15.2 | 596.0 | | | 1.000003 |
| 104000.0 | 10.0 | -38.3 | -0. | 14.8 | 596.7 | | | 1.000003 |
| 104500.0 | 9.8 | -37.8 | -0. | 14.4 | 597.3 | | | 1.000003 |
| 105000.0 | 9.5 | -37.3 | -0. | 14.1 | 597.9 | | | 1.000003 |
| 105500.0 | 9.3 | -36.8 | -0. | 13.8 | 598.6 | | | 1.000003 |
| 106000.0 | 9.1 | -36.3 | -0. | 13.4 | 599.2 | | | 1.000003 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 1030 HRS MDT
ASCENSION NO. 766

MANDATORY LEVELS
0360003901
WHITL SANDS SITE
TABLE VIII

WSM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUM. PERCENT | WIND DATA | |
|-----------------------|---------|----------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS | FEET | AIR DEGREES | DEWPOINT CENTIGRADE | | DIRECTION DEGREES(TN) | SPEED KNOTS |
| 850.0 | 5137. | 20.0 | 9.2 | 50. | 272.0 | 2.8 |
| 800.0 | 6842. | 16.8 | 5.6 | 47. | 13.5 | 5.7 |
| 750.0 | 8641. | 14.6 | 0.1 | 37. | 36.9 | 11.7 |
| 700.0 | 10542. | 10.7 | -4.4 | 34. | 57.7 | 15.9 |
| 650.0 | 12550. | 5.5 | -8.0 | 37. | 55.6 | 14.6 |
| 600.0 | 14683. | 2.9 | -16.0 | 24. | 49.1 | 9.5 |
| 550.0 | 16982. | -0.5 | -24.8 | 14. | 59.2 | 7.1 |
| 500.0 | 19458. | -5.4 | -30.1 | 12. | 23.9 | 7.1 |
| 450.0 | 22153. | -9.2 | -35.0 | 10. | 325.7 | 9.6 |
| 400.0 | 25105. | -15.7 | -39.1 | 11. | 320.7 | 8.5 |
| 350.0 | 28356. | -24.0 | -42.5 | 17. | 279.7 | 16.6 |
| 300.0 | 31984. | -31.2 | -49.2 | 15. | 279.0 | 21.7 |
| 250.0 | 36151. | -39.9 | -59.8 | 10.** | 281.6 | 26.4 |
| 200.0 | 41032. | -51.2 | -74.1 | 5.** | 268.6 | 27.9 |
| 175.0 | 43838. | -57.9 | -85.9 | 2.** | 266.7 | 25.1 |
| 150.0 | 46971. | -65.0 | 0. | -0.** | 272.5 | 24.6 |
| 125.0 | 50550. | -72.4 | 0. | -0.** | 290.8 | 18.9 |
| 100.0 | 54830. | -72.2 | 0. | -0.** | 176.1 | 4.8 |
| 80.0 | 59193. | -65.3 | 0. | -0.** | 109.6 | 13.1 |
| 70.0 | 61867. | -65.8 | 0. | -0.** | 97.5 | 14.3 |
| 60.0 | 64952. | -63.1 | 0. | -0.** | 92.5 | 9.8 |
| 50.0 | 68673. | -58.4 | 0. | -0.** | 88.7 | 14.2 |
| 40.0 | 73313. | -56.1 | 0. | -0.** | 96.4 | 9.6 |
| 30.0 | 79348. | -52.4 | 0. | -0.** | 64.0 | 9.0 |
| 25.0 | 83249. | -48.6 | 0. | -0.** | 73.6 | 9.5 |
| 20.0 | 88094. | -46.4 | 0. | -0.** | 115.1 | 8.6 |
| 15.0 | 94393. | -44.2 | 0. | -0.** | 121.5 | 5.7 |
| 10.0 | 103396. | -38.4 | 0. | -0.** | | |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

SIGNIFICANT LEVEL DATA
0312003906
WHITE SANDS SITE
TABLE IX

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE | | REL. HUM. PERCENT |
|-----------------------|-----------------------------------|----------------|------------------------|----------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | |
| 883.4 | 3989.0 | 16.5 | 15.1 | 91.0 |
| 873.0 | 4323.0 | 19.5 | 14.2 | 71.0 |
| 787.0 | 7238.2 | 15.1 | 9.5 | 69.0 |
| 774.0 | 7701.1 | 13.3 | 8.4 | 72.0 |
| 724.0 | 9542.0 | 10.6 | 5.8 | 72.0 |
| 690.0 | 10850.8 | 5.9 | 5.8 | 99.0 |
| 686.0 | 11007.5 | 5.4 | 5.4 | 100.0 |
| 666.0 | 11804.1 | 5.4 | 1.5 | 76.0 |
| 651.0 | 12414.7 | 3.4 | -2.1 | 67.0 |
| 607.0 | 14268.7 | -0.8 | -3.7 | 81.0 |
| 582.0 | 15373.7 | -0.8 | -13.4 | 38.0 |
| 577.0 | 15600.7 | 0.4 | -18.9 | 22.0 |
| 550.0 | 16859.3 | -1.5 | -22.8 | 18.0 |
| 541.0 | 17290.2 | -2.8 | -17.6 | 31.0 |
| 512.0 | 18719.7 | -5.0 | -27.0 | 16.0 |
| 485.0 | 20112.6 | -7.6 | -27.3 | 19.0 |
| 477.0 | 20538.7 | -7.0 | -29.4 | 15.0 |
| 334.0 | 29340.6 | -26.6 | -42.0 | 22.0 |
| 315.0 | 30722.1 | -30.4 | -41.0 | 35.0 |
| 296.0 | 32174.2 | -31.8 | -47.4 | 20.0 |
| 284.0 | 33132.6 | -34.2 | -49.9 | 19.0 |
| 208.0 | 40070.5 | -50.1 | 0. | -0. ** |
| 154.0 | 46319.8 | -65.3 | 0. | -0. ** |
| 130.0 | 49658.5 | -72.8 | 0. | -0. ** |
| 114.0 | 52190.5 | -74.3 | 0. | -0. ** |
| 93.0 | 56110.7 | -73.4 | 0. | -0. ** |
| 44.0 | 71075.9 | -59.1 | 0. | -0. ** |
| 38.0 | 74140.0 | -55.3 | 0. | -0. ** |
| 20.0 | 79823.5 | -56.6 | 0. | -0. ** |
| 23.0 | 84761.0 | -49.9 | 0. | -0. ** |

RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 30990 FEET MSL
21 SEPT. 67
ASCENSION NO. 765

0700 HRS MDT

SIGNIFICANT LEVEL DATA

0312003906

WHITE SANDS SITE

TALLE IX (Cont)

MSTM SITE COORDINATES
E 488.980 FEET
N 105.045 FEET

| PRESSURE GEOMETRIC ALTITUDE MILIBARS MSL FEET | TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT |
|---|---|----------------------|
| 9.6 103977.6 | -42.5 | 0. ** |
| 8.8 105936.2 | -40.1 | 0. ** |

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

UPPER AIR DATA
0312003906
WHITE SANDS SITE
TABLE X

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

WSTM SITE COORDINATES
E 486.580 FEET
N 185.045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES | DEWPOINT CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION (TN) DEGREES | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------------------|------------------------|----------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 3989.0 | 883.4 | 16.5 | 15.1 | 91.0 | 1054.9 | 665.1 | 0. | 0. | 1.000312 |
| 4000.0 | 883.1 | 16.6 | 15.1 | 90.3 | 1054.1 | 665.2 | 0.5 | 0.1 | 1.000312 |
| 4500.0 | 867.5 | 19.2 | 13.9 | 70.9 | 1026.7 | 668.1 | 21.4 | 3.0 | 1.000299 |
| 5000.0 | 852.2 | 18.5 | 13.1 | 70.5 | 1011.4 | 667.2 | 42.3 | 5.9 | 1.000294 |
| 5500.0 | 837.2 | 17.7 | 12.3 | 70.2 | 996.4 | 666.2 | 63.3 | 8.9 | 1.000286 |
| 6000.0 | 822.4 | 17.0 | 11.5 | 69.8 | 981.6 | 665.3 | 84.2 | 11.8 | 1.000280 |
| 6500.0 | 807.9 | 16.2 | 10.7 | 69.5 | 967.0 | 664.4 | 92.2 | 13.3 | 1.000274 |
| 7000.0 | 793.7 | 15.5 | 9.9 | 69.2 | 952.6 | 663.4 | 87.9 | 13.4 | 1.000268 |
| 7500.0 | 779.6 | 14.1 | 8.9 | 70.7 | 940.5 | 661.7 | 83.9 | 13.0 | 1.000262 |
| 8000.0 | 765.7 | 12.9 | 8.0 | 72.0 | 927.8 | 660.3 | 80.2 | 12.3 | 1.000256 |
| 8500.0 | 751.9 | 12.1 | 7.3 | 72.0 | 913.6 | 659.4 | 79.6 | 12.9 | 1.000251 |
| 9000.0 | 738.4 | 11.4 | 6.6 | 72.0 | 899.6 | 658.5 | 79.9 | 13.6 | 1.000246 |
| 9500.0 | 725.1 | 10.7 | 5.9 | 72.0 | 885.9 | 657.6 | 82.9 | 14.8 | 1.000241 |
| 10000.0 | 711.9 | 9.0 | 6.0 | 81.4 | 874.9 | 655.6 | 85.6 | 15.8 | 1.000239 |
| 10500.0 | 699.0 | 7.2 | 6.0 | 91.8 | 864.4 | 653.6 | 87.3 | 16.3 | 1.000237 |
| 11000.0 | 686.2 | 5.4 | 5.5 | 100.0 | 854.0 | 651.5 | 88.5 | 16.4 | 1.000234 |
| 11500.0 | 673.6 | 5.4 | 3.1 | 85.2 | 838.9 | 651.3 | 89.0 | 16.0 | 1.000224 |
| 12000.0 | 661.2 | 4.8 | 0.4 | 73.1 | 825.9 | 650.3 | 89.6 | 14.7 | 1.000215 |
| 12500.0 | 648.9 | 3.2 | -2.2 | 67.6 | 815.6 | 648.3 | 90.2 | 12.6 | 1.000208 |
| 13000.0 | 636.8 | 2.1 | -2.6 | 71.4 | 803.7 | 646.9 | 90.0 | 10.3 | 1.000204 |
| 13500.0 | 624.9 | 0.9 | -3.0 | 75.2 | 792.0 | 645.6 | 89.1 | 7.9 | 1.000201 |
| 14000.0 | 613.2 | -0.2 | -3.4 | 79.0 | 780.4 | 644.3 | 86.0 | 5.1 | 1.000198 |
| 14500.0 | 601.7 | -0.8 | -5.2 | 72.0 | 767.7 | 643.4 | 81.6 | 2.2 | 1.000192 |
| 15000.0 | 590.3 | -0.8 | -9.3 | 52.5 | 755.8 | 643.2 | 73.6 | 1.7 | 1.000183 |
| 15500.0 | 579.2 | -0.1 | -16.0 | 29.1 | 738.3 | 643.7 | 45.7 | 1.8 | 1.000173 |
| 16000.0 | 568.3 | -0.2 | -20.1 | 20.7 | 724.8 | 643.6 | 353.1 | 2.7 | 1.000168 |
| 16500.0 | 557.6 | -1.0 | -21.7 | 19.1 | 713.2 | 642.6 | 347.7 | 4.3 | 1.000164 |
| 17000.0 | 547.0 | -1.9 | -20.8 | 22.2 | 702.2 | 641.5 | 353.7 | 6.1 | 1.000162 |
| 17500.0 | 536.6 | -3.1 | -18.8 | 28.8 | 691.8 | 640.2 | 356.9 | 8.0 | 1.000161 |
| 18000.0 | 526.4 | -3.9 | -21.8 | 23.6 | 680.6 | 639.2 | 359.9 | 9.6 | 1.000157 |

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

UPPER AIR DATA
0312003906
WHITE SANDS SITE
TABLE X (Cont)

STATION ALTITUDE 3989.0 FEET MSI
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION | |
|-----------------------------------|-----------------------|------------------------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|--|
| | | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | | |
| 18500.0 | 516.4 | -4.7 | -25.3 | 18.3 | 669.7 | 638.2 | | 2.7 | 10.5 | 1.000153 | |
| 19000.0 | 506.4 | -5.5 | -27.1 | 16.6 | 659.0 | 637.2 | | 3.3 | 11.2 | 1.000150 | |
| 19500.0 | 496.7 | -6.5 | -27.1 | 17.7 | 648.6 | 636.0 | | 359.9 | 11.4 | 1.000148 | |
| 20000.0 | 487.1 | -7.4 | -27.3 | 18.8 | 638.3 | 634.9 | | 354.6 | 11.6 | 1.000146 | |
| 20500.0 | 477.7 | -7.1 | -29.1 | 15.4 | 625.2 | 635.3 | | 342.2 | 11.6 | 1.000142 | |
| 21000.0 | 468.2 | -8.0 | -29.9 | 15.4 | 615.0 | 634.1 | | 330.7 | 11.6 | 1.000140 | |
| 21500.0 | 458.8 | -9.1 | -30.6 | 15.8 | 605.2 | 632.8 | | 322.6 | 11.8 | 1.000137 | |
| 22000.0 | 449.6 | -10.3 | -31.3 | 16.2 | 595.6 | 631.5 | | 315.8 | 12.2 | 1.000135 | |
| 22500.0 | 440.6 | -11.4 | -31.9 | 16.6 | 586.2 | 630.1 | | 311.7 | 13.0 | 1.000133 | |
| 23000.0 | 431.8 | -12.5 | -32.6 | 17.0 | 576.9 | 628.8 | | 312.1 | 13.4 | 1.000131 | |
| 23500.0 | 423.1 | -13.6 | -33.3 | 17.4 | 567.8 | 627.4 | | 317.4 | 13.5 | 1.000129 | |
| 24000.0 | 414.6 | -14.7 | -34.0 | 17.8 | 558.8 | 626.1 | | 321.9 | 13.7 | 1.000126 | |
| 24500.0 | 406.3 | -15.8 | -34.7 | 18.2 | 550.0 | 624.7 | | 326.0 | 13.9 | 1.000124 | |
| 25000.0 | 398.2 | -16.9 | -35.4 | 18.5 | 541.3 | 623.4 | | 327.8 | 13.9 | 1.000122 | |
| 25500.0 | 390.2 | -18.0 | -36.2 | 18.9 | 532.8 | 622.0 | | 327.2 | 14.3 | 1.000120 | |
| 26000.0 | 382.4 | -19.2 | -36.9 | 19.3 | 524.4 | 620.6 | | 321.6 | 15.5 | 1.000118 | |
| 26500.0 | 374.7 | -20.3 | -37.7 | 19.7 | 516.2 | 619.3 | | 314.4 | 16.2 | 1.000116 | |
| 27000.0 | 367.2 | -21.4 | -38.4 | 20.1 | 508.1 | 617.9 | | 306.2 | 16.7 | 1.000114 | |
| 27500.0 | 359.8 | -22.5 | -39.2 | 20.5 | 500.1 | 616.9 | | 296.8 | 17.6 | 1.000113 | |
| 28000.0 | 352.6 | -23.6 | -39.9 | 20.9 | 492.3 | 615.2 | | 287.6 | 18.4 | 1.000111 | |
| 28500.0 | 345.6 | -24.7 | -40.7 | 21.3 | 484.6 | 613.8 | | 279.7 | 18.8 | 1.000109 | |
| 29000.0 | 338.6 | -25.8 | -41.5 | 21.7 | 477.0 | 612.4 | | 273.5 | 19.6 | 1.000107 | |
| 29500.0 | 331.8 | -27.0 | -41.8 | 23.5 | 469.6 | 610.9 | | 270.6 | 21.1 | 1.000106 | |
| 30000.0 | 324.8 | -28.4 | -41.3 | 28.2 | 462.3 | 609.2 | | 268.5 | 22.5 | 1.000104 | |
| 30500.0 | 318.0 | -29.8 | -41.1 | 32.9 | 455.2 | 607.5 | | 267.1 | 24.0 | 1.000102 | |
| 31000.0 | 311.3 | -30.7 | -42.1 | 32.1 | 447.2 | 606.4 | | 268.1 | 25.4 | 1.000101 | |
| 31500.0 | 304.7 | -31.2 | -44.1 | 27.0 | 438.6 | 605.8 | | 270.7 | 26.8 | 1.000098 | |
| 32000.0 | 298.2 | -31.6 | -46.5 | 21.8 | 430.2 | 605.2 | | 272.9 | 28.1 | 1.000096 | |
| 32500.0 | 291.9 | -32.6 | -48.3 | 19.7 | 422.7 | 603.9 | | 274.9 | 29.3 | 1.000095 | |
| 33000.0 | 285.6 | -33.9 | -49.6 | 19.1 | 415.9 | 602.3 | | 276.8 | 29.4 | 1.000093 | |

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67
ASCENSION NO. 765

UPPER AIR DATA
U312003906
WHITE SANDS SITE
TABLE X (Cont)

WSTM SITE COORDINATES
E 486.580 FEET
N 185.045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 33500.0 | 279.4 | -35.0 | -51.1 | 18.0** | 408.7 | 600.9 | | 278.8 | 28.9 | 1.000091 |
| 34000.0 | 273.2 | -36.2 | -52.7 | 16.6** | 401.6 | 599.4 | | 279.3 | 28.9 | 1.000090 |
| 34500.0 | 267.1 | -37.3 | -54.4 | 15.3** | 394.6 | 598.0 | | 279.0 | 29.1 | 1.000088 |
| 35000.0 | 261.2 | -38.5 | -56.1 | 13.9** | 387.7 | 596.5 | | 278.0 | 27.9 | 1.000087 |
| 35500.0 | 255.4 | -39.6 | -57.9 | 12.5** | 381.0 | 595.0 | | 276.7 | 25.9 | 1.000085 |
| 36000.0 | 249.7 | -40.8 | -59.8 | 11.1** | 374.4 | 593.6 | | 275.0 | 25.5 | 1.000084 |
| 36500.0 | 244.2 | -41.9 | -61.7 | 9.8** | 367.9 | 592.1 | | 275.0 | 25.8 | 1.000082 |
| 37000.0 | 238.7 | -43.1 | -63.8 | 8.4** | 361.5 | 590.6 | | 272.6 | 25.5 | 1.000081 |
| 37500.0 | 233.4 | -44.2 | -66.0 | 7.0** | 355.3 | 589.2 | | 267.0 | 24.9 | 1.000079 |
| 38000.0 | 228.3 | -45.4 | -68.4 | 5.7** | 349.1 | 587.7 | | 266.2 | 24.9 | 1.000078 |
| 38500.0 | 223.2 | -46.5 | -71.2 | 4.3** | 343.1 | 586.2 | | 264.7 | 25.9 | 1.000076 |
| 39000.0 | 218.2 | -47.6 | -74.6 | 2.9** | 337.2 | 584.7 | | 263.2 | 26.8 | 1.000075 |
| 39500.0 | 213.4 | -48.8 | -79.4 | 1.6** | 331.4 | 583.2 | | 261.1 | 26.8 | 1.000074 |
| 40000.0 | 208.7 | -49.9 | -92.0 | 0.2** | 325.7 | 581.7 | | 259.1 | 26.8 | 1.000073 |
| 40500.0 | 203.7 | -51.1 | 0. | -0. ** | 319.8 | 580.2 | | 257.2 | 27.5 | 1.000071 |
| 41000.0 | 198.9 | -52.4 | 0. | -0. ** | 313.9 | 578.6 | | 255.3 | 28.3 | 1.000070 |
| 41500.0 | 194.2 | -53.6 | 0. | -0. ** | 308.1 | 577.0 | | 254.1 | 28.8 | 1.000069 |
| 42000.0 | 189.6 | -54.8 | 0. | -0. ** | 302.5 | 575.4 | | 252.9 | 29.2 | 1.000067 |
| 42500.0 | 185.1 | -56.0 | 0. | -0. ** | 296.9 | 573.8 | | 251.7 | 29.6 | 1.000066 |
| 43000.0 | 180.7 | -57.2 | 0. | -0. ** | 291.5 | 572.2 | | 250.5 | 30.1 | 1.000065 |
| 43500.0 | 176.4 | -58.4 | 0. | -0. ** | 286.2 | 570.6 | | 251.1 | 29.8 | 1.000064 |
| 44000.0 | 172.2 | -59.7 | 0. | -0. ** | 281.0 | 568.9 | | 252.0 | 29.4 | 1.000063 |
| 44500.0 | 168.1 | -60.9 | 0. | -0. ** | 275.9 | 567.3 | | 252.1 | 29.6 | 1.000061 |
| 45000.0 | 164.1 | -62.1 | 0. | -0. ** | 270.9 | 565.7 | | 251.8 | 30.1 | 1.000060 |
| 45500.0 | 160.2 | -63.3 | 0. | -0. ** | 266.0 | 564.1 | | 252.7 | 30.0 | 1.000059 |
| 46000.0 | 156.4 | -64.5 | 0. | -0. ** | 261.2 | 562.4 | | 253.1 | 29.4 | 1.000058 |
| 46500.0 | 152.6 | -65.7 | 0. | -0. ** | 256.3 | 560.8 | | 257.5 | 28.8 | 1.000057 |
| 47000.0 | 148.8 | -66.8 | 0. | -0. ** | 251.2 | 559.3 | | 260.5 | 28.6 | 1.000056 |
| 47500.0 | 145.0 | -68.0 | 0. | -0. ** | 246.3 | 557.8 | | 263.4 | 28.4 | 1.000055 |
| 48000.0 | 141.4 | -69.1 | 0. | -0. ** | 241.4 | 556.2 | | 267.0 | 28.7 | 1.000054 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

UPPER AIR DATA
1312003906
WHITE SANDS SITE
TABLE X (Cont)

WSTM SITE COORDINATES
E 480,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|------------------------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|---------------------------|
| | | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | |
| 48500.0 | 137.9 | -70.2 | 0. | -0. | 236.7 | 554.7 | 270.7 | 29.1 | 1.000033 |
| 49000.0 | 134.4 | -71.3 | 0. | -0. | 232.0 | 553.2 | 272.9 | 29.6 | 1.000032 |
| 49500.0 | 131.0 | -72.4 | 0. | -0. | 227.5 | 551.6 | 274.2 | 30.1 | 1.000031 |
| 50000.0 | 127.7 | -73.0 | 0. | -0. | 222.3 | 550.9 | 275.1 | 29.6 | 1.000030 |
| 50500.0 | 124.4 | -73.3 | 0. | -0. | 217.0 | 550.5 | 275.4 | 27.6 | 1.000040 |
| 51000.0 | 121.3 | -73.6 | 0. | -0. | 211.7 | 550.1 | 275.3 | 25.5 | 1.000047 |
| 51500.0 | 118.2 | -73.9 | 0. | -0. | 206.6 | 549.6 | 273.6 | 22.9 | 1.000046 |
| 52000.0 | 115.1 | -74.2 | 0. | -0. | 201.6 | 549.2 | 271.9 | 20.2 | 1.000045 |
| 52500.0 | 112.2 | -74.2 | 0. | -0. | 196.5 | 549.2 | 267.9 | 18.2 | 1.000044 |
| 53000.0 | 109.3 | -74.1 | 0. | -0. | 191.3 | 549.3 | 263.9 | 16.2 | 1.000043 |
| 53500.0 | 106.5 | -74.0 | 0. | -0. | 186.3 | 549.5 | 262.6 | 15.3 | 1.000041 |
| 54000.0 | 103.8 | -73.9 | 0. | -0. | 181.4 | 549.7 | 262.5 | 14.9 | 1.000040 |
| 54500.0 | 101.1 | -73.8 | 0. | -0. | 176.7 | 549.8 | 261.4 | 13.2 | 1.000039 |
| 55000.0 | 98.5 | -73.7 | 0. | -0. | 172.1 | 550.0 | 258.5 | 9.6 | 1.000038 |
| 55500.0 | 96.0 | -73.5 | 0. | -0. | 167.6 | 550.1 | 248.7 | 6.8 | 1.000037 |
| 56000.0 | 93.5 | -73.4 | 0. | -0. | 163.2 | 550.3 | 183.9 | 4.7 | 1.000036 |
| 56500.0 | 91.2 | -73.0 | 0. | -0. | 158.8 | 550.8 | 119.0 | 3.2 | 1.000035 |
| 57000.0 | 89.0 | -72.6 | 0. | -0. | 154.5 | 551.5 | 102.7 | 5.3 | 1.000034 |
| 57500.0 | 86.8 | -72.1 | 0. | -0. | 150.3 | 552.1 | 99.7 | 8.3 | 1.000033 |
| 58000.0 | 84.6 | -71.6 | 0. | -0. | 146.3 | 552.8 | 91.8 | 10.0 | 1.000033 |
| 58500.0 | 82.5 | -71.1 | 0. | -0. | 142.3 | 553.5 | 79.1 | 10.6 | 1.000032 |
| 59000.0 | 80.5 | -70.6 | 0. | -0. | 138.5 | 554.1 | 69.9 | 11.6 | 1.000031 |
| 59500.0 | 78.5 | -70.2 | 0. | -0. | 134.7 | 554.8 | 66.7 | 13.3 | 1.000030 |
| 60000.0 | 76.6 | -69.7 | 0. | -0. | 131.1 | 555.4 | 64.7 | 15.0 | 1.000029 |
| 60500.0 | 74.7 | -69.2 | 0. | -0. | 127.6 | 556.1 | 63.2 | 16.7 | 1.000028 |
| 61000.0 | 72.8 | -68.7 | 0. | -0. | 124.1 | 556.7 | 67.0 | 18.2 | 1.000028 |
| 61500.0 | 71.0 | -68.3 | 0. | -0. | 120.8 | 557.4 | 73.3 | 19.3 | 1.000027 |
| 62000.0 | 69.3 | -67.8 | 0. | -0. | 117.5 | 558.0 | 79.7 | 20.4 | 1.000026 |
| 62500.0 | 67.6 | -67.3 | 0. | -0. | 114.4 | 558.7 | 81.7 | 19.5 | 1.000025 |
| 63000.0 | 65.9 | -66.8 | 0. | -0. | 111.3 | 559.3 | 83.6 | 19.5 | 1.000025 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3089.0 FEET MSL
 21 SEPT. 67 0700 HRS MDT
 ASCENSION NO. 745
 UPPER AIR DATA
 U.312003906
 WHITE SANDS SITE
 TABLE X (Cont)
 WSYM SITE COORDINATES
 E 488,500 FEET
 N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES | DEWPOINT CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|----------------------------|------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 63500.0 | 64.3 | -66.3 | 0. | -0. | 108.3 | 560.0 | 86.0 | 17.7 | 1.000024 |
| 64000.0 | 62.7 | -65.9 | 0. | -0. | 105.4 | 560.6 | 88.7 | 17.1 | 1.000023 |
| 64500.0 | 61.1 | -65.4 | 0. | -0. | 102.5 | 561.3 | 91.5 | 16.5 | 1.000023 |
| 65000.0 | 59.6 | -64.9 | 0. | -0. | 99.8 | 561.9 | 93.3 | 14.3 | 1.000022 |
| 65500.0 | 58.2 | -64.4 | 0. | -0. | 97.1 | 562.5 | 95.2 | 12.1 | 1.000022 |
| 66000.0 | 56.7 | -64.0 | 0. | -0. | 94.5 | 563.2 | 97.1 | 11.2 | 1.000021 |
| 66500.0 | 55.3 | -63.5 | 0. | -0. | 91.9 | 563.8 | 99.0 | 11.6 | 1.000020 |
| 67000.0 | 53.9 | -63.0 | 0. | -0. | 89.4 | 564.5 | 101.0 | 11.9 | 1.000020 |
| 67500.0 | 52.6 | -62.5 | 0. | -0. | 87.0 | 565.1 | 98.0 | 10.7 | 1.000019 |
| 68000.0 | 51.3 | -62.0 | 0. | -0. | 84.7 | 565.8 | 91.1 | 9.5 | 1.000019 |
| 68500.0 | 50.0 | -61.6 | 0. | -0. | 82.4 | 566.4 | 86.5 | 8.9 | 1.000018 |
| 69000.0 | 48.8 | -61.1 | 0. | -0. | 80.2 | 567.0 | 82.5 | 9.4 | 1.000018 |
| 69500.0 | 47.6 | -60.6 | 0. | -0. | 78.0 | 567.7 | 78.5 | 9.8 | 1.000017 |
| 70000.0 | 46.4 | -60.1 | 0. | -0. | 75.9 | 568.3 | 72.1 | 9.9 | 1.000017 |
| 70500.0 | 45.3 | -59.6 | 0. | -0. | 73.9 | 568.9 | 64.8 | 9.8 | 1.000016 |
| 71000.0 | 44.2 | -59.1 | 0. | -0. | 71.9 | 569.6 | 58.1 | 9.7 | 1.000016 |
| 71500.0 | 43.1 | -58.6 | 0. | -0. | 70.0 | 570.4 | 60.5 | 10.0 | 1.000016 |
| 72000.0 | 42.1 | -58.1 | 0. | -0. | 68.2 | 571.2 | 62.8 | 10.4 | 1.000015 |
| 72500.0 | 41.1 | -57.3 | 0. | -0. | 66.4 | 572.0 | 65.0 | 10.8 | 1.000015 |
| 73000.0 | 40.1 | -56.7 | 0. | -0. | 64.6 | 572.8 | 66.7 | 11.2 | 1.000014 |
| 73500.0 | 39.2 | -56.1 | 0. | -0. | 62.9 | 573.7 | 68.3 | 11.6 | 1.000014 |
| 74000.0 | 38.3 | -55.5 | 0. | -0. | 61.2 | 574.5 | 69.6 | 11.3 | 1.000014 |
| 74500.0 | 37.4 | -55.4 | 0. | -0. | 59.8 | 574.6 | 70.4 | 10.5 | 1.000013 |
| 75000.0 | 36.5 | -55.5 | 0. | -0. | 58.4 | 574.5 | 71.2 | 9.6 | 1.000013 |
| 75500.0 | 35.6 | -55.6 | 0. | -0. | 57.0 | 574.3 | 72.1 | 9.6 | 1.000013 |
| 76000.0 | 34.8 | -55.7 | 0. | -0. | 55.7 | 574.2 | 73.0 | 10.0 | 1.000012 |
| 76500.0 | 34.0 | -55.8 | 0. | -0. | 54.5 | 574.0 | 74.0 | 10.4 | 1.000012 |
| 77000.0 | 33.2 | -56.0 | 0. | -0. | 53.2 | 573.8 | 76.7 | 10.4 | 1.000012 |
| 77500.0 | 32.4 | -56.1 | 0. | -0. | 52.0 | 573.7 | 80.4 | 10.0 | 1.000012 |
| 78000.0 | 31.6 | -56.2 | 0. | -0. | 50.8 | 573.5 | 84.1 | 9.7 | 1.000011 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

UPPER AIR DATA
7312003906
WHITT: SANDS SITE
TALLE X (Cont)

WSTM SITE COORDINATES
E 480.580 FEET
N 165.045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|---|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 78500.0 | 30.9 | -56.3 | -0.0 | 49.6 | 573.4 | 86.1 | 9.1 | 1.000011 |
| 79000.0 | 30.2 | -56.4 | -0.0 | 48.5 | 573.2 | 87.5 | 8.5 | 1.000011 |
| 79500.0 | 29.4 | -56.5 | -0.0 | 47.4 | 573.1 | 88.9 | 7.8 | 1.000011 |
| 80000.0 | 28.8 | -56.4 | -0.0 | 46.2 | 573.3 | 92.9 | 6.7 | 1.000010 |
| 80500.0 | 28.1 | -55.7 | -0.0 | 45.0 | 574.2 | 97.9 | 5.4 | 1.000010 |
| 81000.0 | 27.4 | -55.0 | -0.0 | 43.8 | 575.1 | 103.0 | 4.1 | 1.000010 |
| 81500.0 | 26.8 | -54.3 | -0.0 | 42.7 | 576.0 | 102.2 | 3.6 | 1.000009 |
| 82000.0 | 26.2 | -53.6 | -0.0 | 41.6 | 576.9 | 98.9 | 3.3 | 1.000009 |
| 82500.0 | 25.6 | -53.0 | -0.0 | 40.5 | 577.8 | 95.7 | 3.0 | 1.000009 |
| 83000.0 | 25.0 | -52.3 | -0.0 | 39.4 | 578.7 | 92.7 | 3.6 | 1.000009 |
| 83500.0 | 24.4 | -51.6 | -0.0 | 38.4 | 579.6 | 89.8 | 4.6 | 1.000009 |
| 84000.0 | 23.8 | -50.9 | -0.0 | 37.4 | 580.4 | 86.9 | 5.6 | 1.000008 |
| 84500.0 | 23.3 | -50.3 | -0.0 | 36.4 | 581.3 | 79.6 | 5.7 | 1.000008 |
| 85000.0 | 22.8 | -49.8 | -0.0 | 35.5 | 581.9 | 70.1 | 5.4 | 1.000008 |
| 85500.0 | 22.2 | -49.6 | -0.0 | 34.7 | 582.2 | 60.7 | 5.1 | 1.000008 |
| 86000.0 | 21.7 | -49.4 | -0.0 | 33.9 | 582.4 | 54.8 | 4.9 | 1.000008 |
| 86500.0 | 21.3 | -49.2 | -0.0 | 33.1 | 582.7 | 50.6 | 4.7 | 1.000007 |
| 87000.0 | 20.8 | -49.0 | -0.0 | 32.3 | 582.9 | 46.5 | 4.6 | 1.000007 |
| 87500.0 | 20.3 | -48.8 | -0.0 | 31.5 | 583.2 | 36.8 | 4.1 | 1.000007 |
| 88000.0 | 19.9 | -48.7 | -0.0 | 30.8 | 583.4 | 23.5 | 3.5 | 1.000007 |
| 88500.0 | 19.4 | -48.5 | -0.0 | 30.1 | 583.7 | 10.3 | 2.8 | 1.000007 |
| 89000.0 | 19.0 | -48.3 | -0.0 | 29.4 | 583.9 | 20.1 | 2.6 | 1.000007 |
| 89500.0 | 18.5 | -48.1 | -0.0 | 28.7 | 584.2 | 47.0 | 2.7 | 1.000006 |
| 90000.0 | 18.1 | -47.9 | -0.0 | 28.0 | 584.4 | 74.0 | 2.8 | 1.000006 |
| 90500.0 | 17.7 | -47.7 | -0.0 | 27.4 | 584.7 | 86.6 | 2.4 | 1.000006 |
| 91000.0 | 17.3 | -47.5 | -0.0 | 26.7 | 584.9 | 86.6 | 1.7 | 1.000006 |
| 91500.0 | 16.9 | -47.3 | -0.0 | 26.1 | 585.2 | 86.6 | 0.9 | 1.000006 |
| 92000.0 | 16.5 | -47.1 | -0.0 | 25.5 | 585.4 | 89.9 | 1.1 | 1.000006 |
| 92500.0 | 16.2 | -46.9 | -0.0 | 24.9 | 585.7 | 96.5 | 2.1 | 1.000006 |
| 93000.0 | 15.8 | -46.7 | -0.0 | 24.3 | 585.9 | 103.1 | 3.1 | 1.000005 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSI
 21 SEPT. 67 0700 HRS MDT
 ASCENSION NO. 77

UPPER AIR DATA
 0312003906
 WHITE SANDS SITE
 TABLE X (Cont)

WSTM SITE COORDINATES
 E 488.580 FEET
 N 185.045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|--|--------------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 92500.0 | 15.5 | -46.5 | 0. | -0. | 23.8 | 586.2 | 102.9 | 3.4 | 1.000005 |
| 94000.0 | 15.1 | -46.3 | 0. | -0. | 23.2 | 586.4 | 94.3 | 2.8 | 1.000005 |
| 94500.0 | 14.8 | -46.1 | 0. | -0. | 22.7 | 586.7 | 85.8 | 2.2 | 1.000005 |
| 95000.0 | 14.4 | -46.0 | 0. | -0. | 22.1 | 586.9 | 82.2 | 3.1 | 1.000005 |
| 95500.0 | 14.1 | -45.8 | 0. | -0. | 21.6 | 587.2 | 85.8 | 6.3 | 1.000005 |
| 96000.0 | 13.8 | -45.6 | 0. | -0. | 21.1 | 587.4 | 89.4 | 9.5 | 1.000005 |
| 96500.0 | 13.5 | -45.4 | 0. | -0. | 20.6 | 587.7 | 88.3 | 11.2 | 1.000005 |
| 97000.0 | 13.2 | -45.2 | 0. | -0. | 20.2 | 587.9 | 79.5 | 20.4 | 1.000004 |
| 97500.0 | 12.9 | -45.0 | 0. | -0. | 19.7 | 588.1 | 70.6 | 9.6 | 1.000004 |
| 98000.0 | 12.6 | -44.8 | 0. | -0. | 19.2 | 588.4 | 64.2 | 9.3 | 1.000004 |
| 98500.0 | 12.3 | -44.6 | 0. | -0. | 18.8 | 588.6 | 62.9 | 10.2 | 1.000004 |
| 99000.0 | 12.0 | -44.4 | 0. | -0. | 18.3 | 588.9 | 61.6 | 11.0 | 1.000004 |
| 99500.0 | 11.8 | -44.2 | 0. | -0. | 17.9 | 589.1 | 57.5 | 11.3 | 1.000004 |
| 100000.0 | 11.5 | -44.0 | 0. | -0. | 17.5 | 589.4 | 46.4 | 10.0 | 1.000004 |
| 100500.0 | 11.2 | -43.8 | 0. | -0. | 17.1 | 589.6 | 35.4 | 8.7 | 1.000004 |
| 101000.0 | 11.0 | -43.6 | 0. | -0. | 16.7 | 589.9 | 32.1 | 8.1 | 1.000004 |
| 101500.0 | 10.7 | -43.5 | 0. | -0. | 16.3 | 590.1 | 52.2 | 5.5 | 1.000004 |
| 102000.0 | 10.5 | -43.3 | 0. | -0. | 15.9 | 590.4 | 72.3 | 10.9 | 1.000004 |
| 102500.0 | 10.3 | -43.1 | 0. | -0. | 15.5 | 590.6 | | | 1.000003 |
| 103000.0 | 10.0 | -42.9 | 0. | -0. | 15.2 | 590.9 | | | 1.000003 |
| 103500.0 | 9.8 | -42.7 | 0. | -0. | 14.8 | 591.1 | | | 1.000003 |
| 104000.0 | 9.6 | -42.5 | 0. | -0. | 14.5 | 591.4 | | | 1.000003 |
| 104500.0 | 9.4 | -41.9 | 0. | -0. | 14.1 | 592.2 | | | 1.000003 |
| 105000.0 | 9.2 | -41.2 | 0. | -0. | 13.8 | 593.0 | | | 1.000003 |
| 105500.0 | 9.0 | -40.6 | 0. | -0. | 13.4 | 593.7 | | | 1.000003 |

** AT 1 EAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 2000.0 FEET MSL
21 SEPT. 67 0700 HRS MDT
ASCENSION NO. 765

MANDATORY LEVELS
1 312003906
WHITE SANDS SITE
TAB.E XI.

WSTM SITE COORDINATES
E 488.580 FEET
N 185.045 FEET

| PRESSURE DIFFERENTIAL | | TEMPERATURE | | REL. HUM. PERCENT | WIND DATA | |
|-----------------------|---------|------------------------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS | FFFT | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | | DIRECTION DEGREES(TN) | SPEED KNOTS |
| 850.0 | 5077. | 18.4 | 13.0 | 70. | 45.6 | 6.4 |
| 800.0 | 6778. | 15.8 | 10.3 | 69. | 89.8 | 13.4 |
| 750.0 | 8567. | 12.0 | 7.2 | 72. | 79.6 | 12.9 |
| 700.0 | 10455. | 7.3 | 6.0 | 91. | 87.1 | 16.3 |
| 650.0 | 12446. | 3.3 | -2.2 | 67. | 90.2 | 12.8 |
| 600.0 | 14561. | -0.8 | -5.8 | 69. | 80.5 | 2.1 |
| 550.0 | 16843. | -1.5 | -22.8 | 18. | 352.2 | 5.5 |
| 500.0 | 19310. | -6.1 | -27.1 | 17. | 1.0 | 11.3 |
| 450.0 | 21997. | -10.2 | -31.2 | 16. | 315.6 | 12.2 |
| 400.0 | 24937. | -16.7 | -35.3 | 18. | 327.7 | 13.9 |
| 350.0 | 28182. | -24.0 | -40.2 | 21. | 284.1 | 18.6 |
| 300.0 | 31810. | -31.5 | -45.8 | 23. | 272.3 | 27.8 |
| 250.0 | 35965. | -40.7 | -59.7 | 11.** | 275.7 | 25.5 |
| 200.0 | 40827. | -52.1 | 0. | -0.** | 255.7 | 28.2 |
| 175.0 | 43621. | -58.8 | 0. | -0.** | 251.5 | 29.5 |
| 150.0 | 46738. | -66.5 | 0. | -0.** | 259.6 | 28.7 |
| 125.0 | 50291. | -73.2 | 0. | -0.** | 275.3 | 28.0 |
| 100.0 | 54563. | -73.7 | 0. | -0.** | 260.2 | 11.7 |
| 80.0 | 58866. | -70.5 | 0. | -0.** | 69.7 | 11.7 |
| 70.0 | 61483. | -68.0 | 0. | -0.** | 75.4 | 19.7 |
| 60.0 | 64544. | -65.0 | 0. | -0.** | 92.4 | 15.5 |
| 50.0 | 68221. | -61.5 | 0. | -0.** | 86.9 | 8.9 |
| 40.0 | 72808. | -56.6 | 0. | -0.** | 66.9 | 11.2 |
| 30.0 | 78814. | -56.4 | 0. | -0.** | 87.8 | 8.3 |
| 25.0 | 82639. | -52.3 | 0. | -0.** | 92.9 | 3.6 |
| 20.0 | 87425. | -48.7 | 0. | -0.** | 29.1 | 3.7 |
| 15.0 | 93663. | -46.2 | 0. | -0.** | 92.9 | 2.7 |
| 10.0 | 102570. | -47.8 | 0. | -0.** | | |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

| RELEASE TIME (MDT) | | SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND | | | | | | | | | | AZI- MUTH (DEG- REES) | THEORETICAL IMPACT FROM LAUNCHER (IN MILES) | | | | |
|-----------------------|-------|---|------|------|------|-------------|-------|-------|-------|---------------|------|--------------------------------|---|--|--|-------|-----|
| | | 11-216 FT | | | | 216-4000 FT | | | | 4000-74168 FT | | | | | | TOTAL | |
| | | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | | | | | | |
| RAWIN- SONDE | PIBAL | | | | | | | | | | | | | | | RANGE | N-S |
| 0700 | 0800 | 3.6S | 0.7W | 5.9S | 8.7E | 3.5S | 12.0W | 13.0S | 4.0W | 007.9 | 65.5 | 65.0N | 9.0E | | | | |
| | 0830 | 3.3S | 1.5W | 4.5S | 1.7E | 3.5S | 12.0W | 11.3S | 11.8W | 001.0 | 67.7 | 66.7 | 1.2 | | | | |
| | 0900 | 3.8S | 0.4E | 0.7S | 0.2E | 3.5S | 12.0W | 8.0S | 11.4W | 001.3 | 70.3 | 70.0 | 1.6 | | | | |
| | 0915 | 4.9S | 0.1E | 0.2S | 0.3E | 3.5S | 12.0W | 8.6S | 11.6W | 001.2 | 69.5 | 69.4 | 1.4 | | | | |
| | 0930 | 4.6S | 1.6W | 0.1N | 0.7W | 3.5S | 12.0W | 8.0S | 14.3W | 358.9 | 70.1 | 70.0 | 1.3W | | | | |
| | 0940 | 2.9S | 0.4W | 0.7S | 1.8W | 3.5S | 12.0W | 7.1S | 14.2W | 359.0 | 71.0 | 70.9 | 1.2 | | | | |
| | 0950 | 4.0S | 0.5E | 2.7S | 0.4E | 3.5S | 12.0W | 10.2S | 11.1W | 001.6 | 68.0 | 67.8 | 1.9E | | | | |
| | 1001 | 2.3S | 1.4E | 1.3S | 0.5W | 3.5S | 12.0W | 7.1S | 11.1W | 001.5 | 71.7 | 70.9 | 1.9 | | | | |
| 1030 | 1001 | 2.3S | 1.4E | 1.3S | 0.5W | 0.1N | 10.6W | 3.5S | 9.7W | 002.5 | 75.1 | 74.5 | 3.3 | | | | |

| | AZI- MUTH (DEG- REES) | MILES FROM LAUNCHER | | |
|--|--------------------------------|---------------------|-------|-------|
| | | RANGE | N-S | E-W |
| LAUNCHER SETTING (ELEVATION 84.4 DEGREES QE) | 013.0 | 80.0 | 78.0N | 18.0E |
| NO WIND IMPACT | 009.4 | 74.3 | 78.0 | 13.0 |
| PREDICTED SECOND-STAGE IMPACT | 360.0 | 69.0 | 69.0 | 0.0 |
| SECOND-STAGE IMPACT, RADAR TRACK | 357.0 | 73.2 | 73.1 | 3.8W |
| PREDICTED BOOSTER IMPACT | 014.0 | 1.8 | 1.7 | 0.4E |
| ACTUAL BOOSTER IMPACT | 002.1 | 1.3 | 1.2 | 0.2 |

TABLE XII. IMPACT PREDICTION DATA
NIKE-HYDAC STV (SR 059)

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

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| 13. ABSTRACT Meteorological data gathered for the launching of Nike-Hydac STV (SR 059) are presented for the Ballistics Systems Division, U. S. Air Force, and for ballistic studies. The data appear, along with calculated Ballistic data, in tabular form. | | | |

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| KEY WORDS | LINK A | | LINK B | | LINK C | |
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